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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,510	06/26/2003	John Roberts	WEAT/0393	4809

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WILLIAM B. PATTERSON  
MOSER, PATTERSON & SHERIDAN, L.L.P.  
Suite 1500  
3040 Post Oak Blvd.  
Houston, TX 77056

EXAMINER

BOMAR, THOMAS S

ART UNIT	PAPER NUMBER
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3672

DATE MAILED: 07/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/607,510

Applicant(s)

ROBERTS, JOHN

Examiner

Shane Bomar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23, 26-30 and 32-34 is/are rejected.
- 7) ☒ Claim(s) 24, 25 and 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/6/03.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 7, 11, 13, 14, 16-18, 21, 26, 28, 33, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by US patent 4,396,065 to McKenney.

Regarding claim 1, McKenney discloses a back-of tool for use in a tubular member disposed inside a wellbore that comprises an inherent housing and at least one sonic wave generator mounted within the housing, wherein the sonic wave generator is configured to generate a plurality of sonic waves (see col. 1, lines 25-28 and col. 2, lines 9-19).

Regarding claim 5, McKenney discloses an apparatus for loosening a threaded connection joining an upper portion and a lower portion of a tubular member that comprises:

- A back-off tool having at least one sonic wave generator;
- An inherent wireline connected to the tool, wherein the wireline lowers the tool through the tubular member; and
- An inherent power supply for delivering a signal to the wave generator, wherein the wave generator generates a plurality of sonic waves upon receipt of the signal (see col. 1, line 53 through col. 2, line 19).

Regarding claim 7, the sonic waves of claim 5 loosen the threaded connection (see claim

1).

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Regarding claims 11, 16, and 18, McKenney discloses a method and apparatus for loosening a threaded connection joining an upper portion and a lower portion of a tubular member that comprises an inherent means for lowering a back-off tool through the tubular member to a position substantially proximate the threaded connection, and a means for generating a plurality of sonic waves (see claims 1, 2, and 5).

Regarding claim 13, the apparatus further comprises an inherent means for delivering a signal to activate the generating means (see col. 2, lines 1-8).

Regarding claims 14 and 21, the method and apparatus further comprises means for applying a reverse torque to the tubular (see claim 1, step a).

Regarding claim 17, the sonic waves are configured to loosen the threaded connection (see claim 1).

Regarding claim 26, McKenney discloses a method for backing-off an upper portion of a tubular member joined to a lower portion of the tubular by a threaded connection in a wellbore that comprises:

- Applying a reverse torque to the upper portion of the tubular (see claim 1, step a);
- Lowering a back-off tool through the tubular to a position substantially proximate the threaded connection (see claim 1, step b); and
- Generating a plurality of sonic waves through the back-off tool to loosen the threaded connection (see claims 1 and 5).

Regarding claim 28, the method of claim 26 further comprises activating the back-off tool to generate the sonic waves (see claim 1, step b).

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Regarding claim 33, the method of claim 26 further comprises retrieving the upper portion from the wellbore (see col. 1, lines 5-9).

Regarding claim 34, the method of claim 26 further comprises generating the plurality of sonic waves (see claim 5) and inherently retrieving the back-off tool since it is well known in the art to retrieve tools after use to avoid junk in the well.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-4, 6, 12, 20, 27, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKenney in view of US patent 4,752,917 to Dechape.

Regarding claims 2, 6, 12, 20, and 27, McKenney teaches the method and apparatus for loosening a threaded connection using a sonic wave generator in a wellbore, as applied to claims 1, 5, 11, 18, and 26 above. It is not taught that the sonic wave generator comprises at least one of a piezoelectric ceramic and a stack of piezoelectric plates.

Dechape teaches a sonic wave generator that comprises a piezoelectric ceramic element (see col. 2, lines 44-46). It would have been obvious to one of ordinary skill in the art, having the teachings of McKenney and Dechape before him at the time the invention was made, to modify the method and apparatus taught by McKenney to include the sonic wave generator of Dechape, in order to obtain a sonic wave device that can be used accurately in spite of the effects

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of the environment (see col. 2, lines 16-24 of Dechape). One would have been motivated to make this combination because the more accurate sonic wave generator would be more beneficial in harsh wellbore environments.

Regarding claim 3, McKenney teaches a back-off tool for use in a tubular member disposed inside a wellbore that comprises an inherent housing and at least one pressure wave generator mounted within the housing, wherein the pressure wave generator is configured to generate at least one pressure wave (see col. 1, lines 25-28 and col. 2, lines 9-19). It is not expressly taught that the pressure wave is at a predetermined frequency.

Dechape teaches a pressure wave generator that generates a pressure wave at a predetermined frequency (see col. 2, lines 44-58). It would have been obvious to one of ordinary skill in the art, having the teachings of McKenney and Dechape before him at the time the invention was made, to modify the back-off tool taught by McKenney to include the pressure wave generator of Dechape, in order to obtain a sonic wave device that can be used accurately in spite of the effects of the environment (see col. 2, lines 16-24 of Dechape). One would have been motivated to make this combination because the more accurate sonic wave generator would be more beneficial in harsh wellbore environments.

Regarding claims 4 and 32, the combination applied to claims 3 or 26 above further comprises a controller electrically connected to the generator, wherein the controller is configured to vary at least one of amplitude, frequency, and resonance of the pressure wave (see col. 2, line 59 through col. 3, lines 54, and the Figure of Dechape).

5. Claims 8-10 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKenney in view of US patent 6,012,521 to Zunkel et al.

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McKenney teaches the method and apparatus for loosening a threaded connection using a sonic wave generator in a wellbore, as applied to claims 5 and 16 above. It is not taught that there are two or more wave generators positioned at two or more locations, wherein the two or more generators are positioned so that a combination of the waves is greater than the plurality of waves from one generator, or that the two generators are configured to be activated simultaneously or at predefined times.

Zunkel et al teaches a wave generator similar to that of McKenney. It is further taught that there are more than two wave generators, the combined waves from the generators is substantially greater than the waves from one generator, and that the two generators are configured to be activated simultaneously or at predefined times (see col. 11, lines 35-54). It would have been obvious to one of ordinary skill in the art, having the teachings of McKenney and Zunkel et al before him at the time the invention was made, to modify the method and apparatus taught by McKenney to include the two or more wave generators of Zunkel et al. One would have been motivated to make such a combination since Zunkel et al have shown it to be notoriously known in the art that pressure (i.e., sonic) wave generators spaced apart in a work string will have an additive wave field intensity.

6. Claims 15, 22, 23, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKenney in view of US patent 2,305,261 to Kinley.

McKenney teaches the method and apparatus for loosening a threaded connection using a sonic wave generator in a wellbore, as applied to claims 11, 16, and 26 above. It is not taught that the method or apparatus further comprises means for setting the tubular to a neutral weight position at the threaded connection above a sticking condition.

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Kinley teaches a method and apparatus for loosening a threaded connection similar to that of McKenney. It is further taught that the tubular is set to a neutral weight position at the threaded connection (see page 1, col. 1, lines 51-54 and page 2, col. 1, lines 50-54). It would have been obvious to one of ordinary skill in the art, having the teachings of McKenney and Kinley before him at the time the invention was made, to modify the method and apparatus taught by McKenney to include the means for setting the tubular to a neutral weight position of Kinley. One would have been motivated to make such a combination in order to relieve the threaded connection of the weight of the string, as taught by Kinley.

Regarding claims 23 and 30, the combination applied to claims 22 and 29 above can also be applied to these claims because the neutral weight position would inherently be moved up or down the tubular member in accordance with the position of the stuck condition.

***Allowable Subject Matter***

7. Claims 24, 25, and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



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*Conclusion*

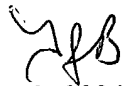
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aron teaches a sonic wave generator. Bodine teaches freeing stuck pipe sonically. Cooke teaches that downhole explosions cause sonic waves. Holzhausen et al teach that pressure waves, sonic waves, and acoustic waves are interchangeable. McCullough teaches a back-off tool. Melson et al teach a plurality of sonic wave generators downhole.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is 703-305-4849. The examiner can normally be reached on Monday - Thursday from 7:00am to 4:30pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 703-308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
David J. Bagnell  
Supervisory Patent Examiner  
Art Unit 3672

tsb  
  
July 19, 2004